

IN THE CLAIMS:

This listing of claims replaces all prior versions, and listings, of claims in the application. Please amend the claims as shown below.

1. (Currently Amended) Process for the decarbonation of gas flows, contaminated with CO₂, comprising placing in contact the gas flow to be purified, in an adsorption zone, with at least one adsorbent consisting essentially of a zeolite containing NaLSX type with an Si/Al ratio of 1 to 1.15, exchanged with sodium to a degree of greater than or equal to 98%, the degree of exchange being expressed as the ratio between the number of sodium ions and the number of aluminium atoms in a tetrahedral position, the remainder of the exchange capacity being occupied by potassium ions, agglomerated with a binder, the content of residual inert binder in the adsorbent being less than or equal to 20% by weight.
2. (Previously Pending) Process according to Claim 1, wherein the content of residual inert binder in the agglomerated zeolite composition is not more than 5% by weight.
3. (Previously Pending) Process according to Claim 1, wherein it is performed by pressure swing adsorption (PSA).
4. (Previously Pending) Process according to Claim 1, wherein the zeolite X has an Si/Al ratio of 1.
5. (Currently Amended) Process according to Claim 1, wherein ~~the~~ adsorption pressures are between 1 and 10 bar and ~~the~~ desorption pressures are between 0.1 and 2 bar.
6. (Currently Amended) Process according to Claim 1, wherein it comprises carrying out a treatment cycle comprising:
 - a) passing the contaminated gas flow into an adsorption zone comprising ~~the~~ an adsorbent bed, the adsorbent bed ensuring separation of the contaminant(s) by adsorption,

b) desorbing the adsorbed CO₂ by establishing a pressure gradient and gradually lowering the pressure in the adsorption zone to recover the CO₂ at the adsorption zone inlet;

c) raising the pressure of the absorption zone by introducing a stream of pure gas via the adsorption zone outlet.

7. (Previously Pending) Process according to Claim 6, in which the adsorbent is regenerated at a temperature between 100 and 120° C.

8. (Currently Amended) Process for purifying air contaminated with CO₂ and H₂O, comprising the gas flow to be purified is placed in contact, in an adsorption zone, with at least one drying agent and at least with an adsorbent consisting generally of zeolite containing NaLSX type with an Si/Al ratio of 1 to 1.15, exchanged with sodium to a degree of greater than or equal to 98%, the degree of exchange being expressed as the ratio between the number of sodium ions and the number of aluminium atoms in a tetrahedral position, the remainder of the exchange capacity being occupied by potassium ions, agglomerated with a binder, the content of residual inert binder in the adsorbent being less than or equal to 20% by weight, whereby adsorption capacity gain is greater for partial pressures of CO₂ of about 2 mbar or less compared to greater such pressures of 5 mbar or more.

9. (Currently Amended) Process according to Claim 8, wherein it comprises carrying out a treatment cycle comprising:

a) passing the contaminated gas flow into an adsorption zone comprising a drying-agent bed and an adsorbent bed, with at least one adsorbent consisting essentially of a zeolite containing NaLSX type with an Si/Al ratio of 1 to 1.15, exchanged with sodium to a degree of greater than or equal to 98%, the degree of exchange being expressed as the ratio between the number of sodium ions and the number of aluminium atoms in a tetrahedral position, the remainder of the exchange capacity being occupied by potassium ions, agglomerated with a binder, the content of residual inert binder in the adsorbent being less than or equal to 20% by weight,